Classification: Utilities Engineer	**Position No.** 3300-3518-001
CBID: R09	**Office:** Energy Systems Research Office
Date Prepared: January 2019	**Division:** Energy Research and Development
KEY: (E) IS ESSENTIAL, (M) IS MARGINAL	

Under the general direction of the Electric Generation System Specialist III in the Energy Systems Research Office, the incumbent provides engineering support to the Energy Technology Systems Integration and Natural Gas research teams. As such, the incumbent performs mechanical, electrical, and civil engineering work in the design, construction, operation and maintenance of electrical or natural gas energy technology integration system research projects. The incumbent conducts investigations and prepares reports involving engineering economics work which includes studies of capital costs, financial structure, depreciation, physical plant inspections, valuations, revenues, and expenses. The incumbent develops and performs engineering and technical analysis and supports research, development, demonstration and deployment of energy and greenhouse gas reducing technologies funded by the Energy Commission with the goal of determining and documenting technical and economic feasibility, energy savings and benefits. The incumbent contributes engineering skills when reviewing and/or preparing engineering and environmental studies and evaluations. The incumbent is knowledgeable of multiple aspects of engineering such as energy/mass balances, thermodynamics, fluid mechanics, combustion, strength/properties of materials, statistical analyses, testing of equipment, economics and interpretation of technical codes and standards.

WORKING CONDITIONS:
The work is performed in an indoor office and meeting room setting involving sitting, standing, and walking. The candidate must work well with people inside and outside the Energy Commission, including members of the general public. Travel is required to conduct detailed field inspections of projects and assessment of mechanical installations, and to attend workshops, hearings and meetings. Additional hours beyond an eight-hour workday or forty-hour workweek may be required. While performing the duties described below, the incumbent will be required to work alone and/or in a team environment; use a personal computer and appropriate Energy Commission software such as word processing, electronic mail and Internet; and participate in and lead meetings with other staff and with other agencies. The incumbent may be also required to use software tools to perform engineering analyses.

DUTIES AND RESPONSIBILITIES:

50% **Technology Assessment.** The incumbent: a) reviews and prepares engineering and economic analysis of technologies and designs related to smart grid technologies, distributed energy resources, microgrids, electric vehicles, and natural gas infrastructure; b) evaluates or performs calculations to determine estimated and actual energy savings, greenhouse gas emission reductions, and costs for projects; c) evaluates rate/tariff structures for different technologies; d) conducts detailed engineering analyses of new and emerging technologies to determine potential to increase grid reliability/resiliency, reduce greenhouse gas emissions, increase safety and provide benefits to the electric grid and/or natural gas system; and e) identifies and recommends RD&D for smart grid technologies, distributed energy resources, microgrids, electric vehicles and natural gas infrastructure. The incumbent will perform complex engineering evaluations such as engineering economics, system reliability, quality of service, heat transfer, mechanical methods of power and material transmission, thermodynamics, pump analysis, mass and energy balances, material selection and specifications, performance and suitability of components, efficiency and economics of engineering design options, cost, and performance, power electronics, transmission and distribution equipment/systems, power flow systems, and safety and

integrity of natural gas infrastructure. The incumbent will read and interpret plans, drawings, specifications and regulations governing energy and natural gas systems, as it relates to the installation of GHG reduction equipment. The incumbent also provides technical assistance to other staff in analyzing engineering problems. (E)

30% **Project Management.** The incumbent serves as the project manager or may act as a technical lead over other technical personnel on complex engineering projects to support adoption and demonstration of cutting-edge and emerging technologies and impacts to the electricity grid and natural gas infrastructure, including interactions to increase grid resiliency and reliability and decarbonization of services; transmission and distribution systems, major electrical installations as applied to underground and overhead electric delivery systems, communications, automation and control systems, advanced power electronics, energy storage, microgrids and technologies such as natural gas sensors, risk assessment tools, and right of way encroachment technologies used to improve the safety and integrity of natural gas systems (i.e., pipelines and storage). The incumbent evaluates research project performance, provides quality control/assurance, reviews interim research products (e.g. results of surveys, test results, design drawings, etc.), evaluates technical changes to project budget/scope, participates in critical project reviews/site visits, and reviews/approves final products from completed projects. (E)

15% **Project Results Dissemination**. The incumbent oversees completion of the most complex project reports, fact sheets, correspondence, and other documents to disseminate project results and lessons learned to Energy Commission staff, management, and the public with a focus on transferring information that provides significant public benefits and value to California and meets the state's energy policies and goals. The incumbent will also engage public and private entities addressing results of funded research and related issues important to the Commission. The incumbent may be required to testify in formal proceedings before the Public Utilities Commission, public interest groups, regulated industries, and various governmental agencies, as well as the Legislature. This function requires the incumbent to effectively communicate research to other engineers, researchers, and the public at large, requiring both a good degree of technical knowledge and expertise and sensitivity to policy issues. In addition to technical proficiency, this liaison responsibility may include assisting with interactions and detailed negotiations with other projects or programs both internally and externally, including national organizations such as the U.S. Department of Energy, the California Public Utilities Commission, US Environmental Protection Agency, American Gas Association, the US Global Change Research Program, California Air Resources Board (ARB), other state agencies, Local Air Districts, investor owned utilities, local disadvantage community groups, and others as needed. (E)

5% Other duties as required consistent with the specification of this classification. (M)

SIGNATURES	
I Certify That I Am Able To Perform, With Or Without The Assistance Of A Reasonable Accommodation, The Essential Job Duties Of This Position	
Incumbent Date Utilities Engineer	Supervisor Date Electric Generation System Specialist III